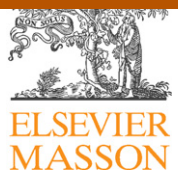
Archives of Cardiovascular Disease (2008) **101**, 373—374



IMAGE

Suspected left-ventricular non-compaction on two- and three-dimensional echocardiography: Is it always clear?

Suspicion de ventricule gauche non compacté en échographie bi- et tridimensionnelle : est-ce toujours clair ?

Hasnaa Belghiti*, Aicha Aouad, Mohammed Arharbi

Department of Cardiology B, Maternity Hospital, University of Rabat, Rabat, Morocco

Received 23 January 2008; received in revised form 22 February 2008; accepted 27 February 2008
Available online 21 May 2008

KEYWORDS
Non compaction of myocardium;
Cardiomyopathy;
Heart failure;
Echocardiography

MOTS CLÉS
Myocarde non compacté ;
Cardiomyopathie ;
Insuffisance cardiaque ;
Échocardiographie

A 56-year-old man was admitted for pulmonary oedema. The patient had a history of hypothyroidism under hormonal therapy and no family history of cardiomyopathy. Clinical examination found an S3 gallop and pulmonary crepitations. The electrocardiogram showed sinus rhythm and left bundle block. The thyroid-stimulating hormone level was normal.

The echocardiogram demonstrated excessively thickened lateral and posterior myocardial walls of the left ventricle, comprising a thin compacted epicardial layer (C) and a thicker non-compacted endocardial (NC) layer of prominent trabeculations and deep intertrabecular recesses. The ratio between these two layers (NC/C) measured at the end systole was 2.5. Colour Doppler displayed flow within the deep intertrabecular recesses. The left ventricle was dilated and hypokinetic with an ejection fraction of 25%. The morphology and function of the right ventricle were normal. There was a moderate and circumferential pericardial effusion. Three-dimensional echocardiography was consistent with the two-dimensional findings. No thrombus was visualized between the trabeculations.

Echocardiography is the first-line diagnostic tool for left-ventricular non-compaction, but recognition of this uncommon cardiomyopathy is not always straightforward and is often uncertain. Echocardiography criteria for its diagnosis have been proposed, including the absence of coexisting cardiac abnormalities; the characteristic appearance

* Corresponding author. Secteur 6 L7, avenue Atthuya, Hay Riad, Rabat, Marocco. Fax: +00 212 37 71 57 51.
E-mail address: hasnaabelghiti@hotmail.com (H. Belghiti).

1875-2136/$ — see front matter
doi:10.1016/j.acvd.2008.02.009

of numerous and excessively prominent trabeculations (> 3); deep intertrabecular recesses filled by blood from the ventricular cavity and an end-systolic NC/C ratio > 2. This last criterion, although not universally admitted, differentiates left-ventricular non-compaction from hypertrophy and dilated cardiomyopathies.

Three-dimensional echocardiography may be helpful for the diagnosis of left-ventricular non-compaction, when its diagnosis is uncertain on two-dimensional echocardiography (by assessing the number of trabeculations) and for the detection of intertrabecular blood clots (Fig. 1).

Note the excessively prominent trabeculations and deep intratrabecular recesses in the mid- and apical segments of the lateral and posterior walls of the left ventricle on two-dimensional (left panels) and three-dimensional (right panels) echocardiography. Colour Doppler displays flow within the deep intertrabecular recesses (mid panels).

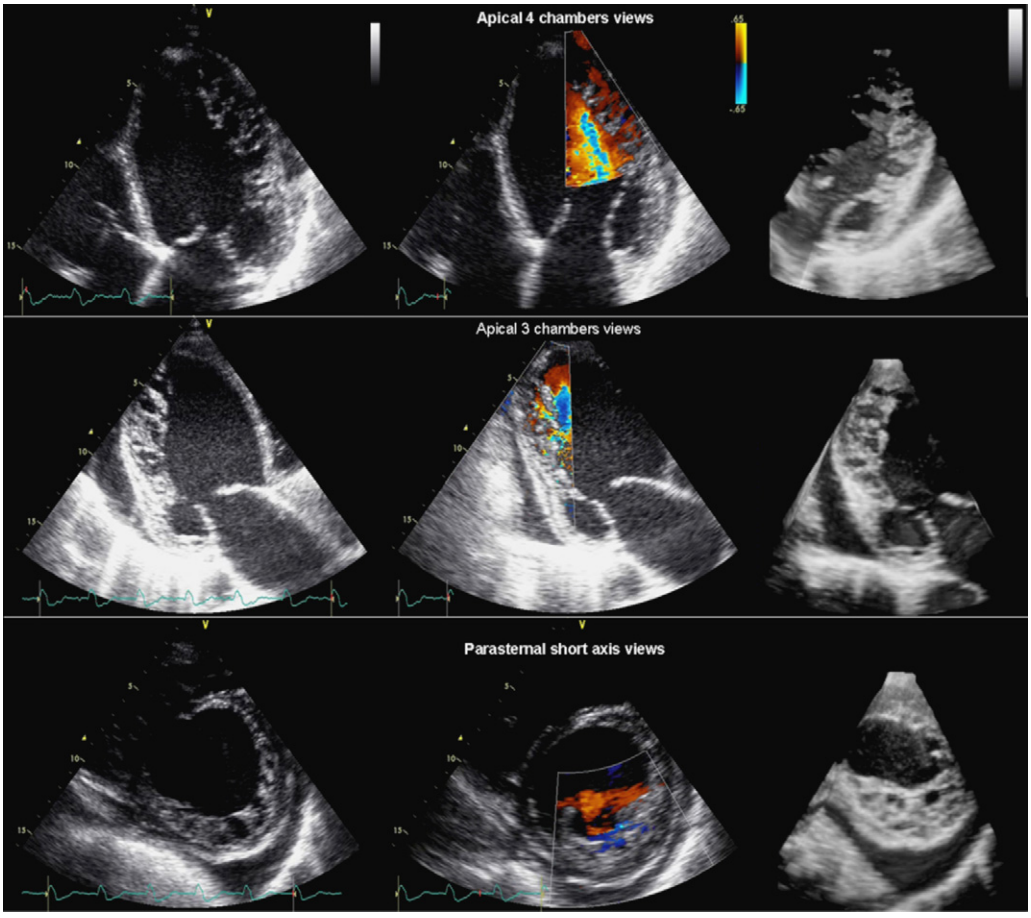


Figure 1. Two- and three-dimensional echocardiographic images of left-ventricular non-compaction.